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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/972,200	10/09/2001	Hiroaki Kunieda	08215.129	3105

7590 07/01/2005  
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EXAMINER

LAROSE, COLIN M

ART UNIT	PAPER NUMBER
2623	

DATE MAILED: 07/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/972,200	<b>Applicant(s)</b> KUNIEDA ET AL.	
	<b>Examiner</b> Colin M. LaRose	<b>Art Unit</b> 2623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 09 March 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-8 and 10-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 8 is/are rejected.
- 7) ☒ Claim(s) 1-7 and 10-17 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 March 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>031005</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Arguments and Amendments***

1. Applicant's amendments and arguments filed 9 March 2005, have been entered and made of record.

### ***Drawings***

2. The corrected Drawings of figures 1, 3, 5, 6, 8, 9, 11, and 13 have been received and placed in the file. These Drawings are accepted.

### ***Specification***

3. The substitute Specification has been received and placed in the file. The substitute Specification is accepted.

### ***Claim Objections***

4. Applicant's amendments to the Claims are sufficient to overcome the previous claim objections.
5. Claims 1-7 and 10-17 are objected to because of the following informalities: In claim 1, "the the curve recognition system" should be changed to -- the curve recognition system --. Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

6. Applicant's amendments to the Specification and Claims are sufficient to overcome the previous claim rejections under 35 USC §§ 112(1)-(2).

***Response to Amendments and Arguments***

7. Applicant has amended claim 1 to denote, inter alia, that "the curve recognition system uses a minutia and a sequence of several points on the fingerprint ridge selected so that chords connecting the adjacent measure points are of equal length, the shape of the fingerprint ridge is characterized by data of lengths of chords between a starting measure point and an ending measure point for every 3 consecutive measure points on the ridge." (emphasis added)

Neither Jain (US6,487,306) nor any of the other cited prior art discloses or suggests the above limitation of selecting chords of equal length connecting adjacent measuring points on a fingerprint ridge, and then using the data pertaining to the lengths of chords connecting every 3 consecutive measuring points to characterize the fingerprint ridge. Such a construction is illustrated in figure 1 of the present application, wherein chords connecting adjacent measure points are of equal length – i.e. chords 41, 42, 43, and 44 are equal in length – and chords connecting every 3 consecutive measure points together are used to characterize the shape of the ridge – i.e. chords 51, 52, and 53 are used to characterize the shape of the ridge.

For this reason, claim 1 and all claims dependent therefrom are allowed.

Art Unit: 2623

8. Regarding claim 8, Applicant's arguments regarding the deficiencies of the Jain reference are persuasive. Therefore, the previous rejection of claim 8 under 35 USC § 103(a) has been withdrawn. A new ground of rejection in view of newly discovered prior art appears below.

***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 4,135,147 by Riganati et al. ("Riganati") in view of U.S. Patent 5,465,303 by Levison et al. ("Levison").

Regarding claim 8, Riganati discloses a system for fingerprint authentication (figure 5 – which is shown in more detail in figure 26) comprising means for judgment on fingerprint verification without compensation for displacement of input fingerprint image, comprising:

means for employing two-dimensional array of memory areas for judgment (accumulator 605, figure 26 employs memory areas in order to accumulate score values and store the accumulated score values);

means for calculating a similarity measure for each pair of minutia data between input fingerprint image and registered template fingerprint (RIV comparison circuit 73, figure 5 computes a similarity measure – i.e. RIV match score – for each pair of minutia data between an input fingerprint and a registered template – see column 11, lines 16-29);

means for accumulating the similarity measure, wherein the similarity measure is stored in the memory area corresponding to that of a vector between the positions of the two minutiae (accumulator 605, figure 26 accumulates the previously calculated similarity measures and temporarily stores the accumulated measure for comparison in a memory area corresponding to an (x, y,  $\theta$ ) displacement between the positions of the two minutae – see e.g. column 39, lines 45-60).

Riganati discloses that the highest accumulated score is output from register 623 as a “final score,” which is indicative of the overall similarity between the input fingerprint and the registered template. Riganati’s system utilizes the final score to “automatically determine whether or not the two fingerprints being compared are sufficiently similar to constitute a match” (column 5, line 54 through column 6, line 3).

However, Riganati does not expressly disclose means for judging input fingerprint as the same as registered one if a maximum value in the memory area exceeds a specified value.

Levison discloses a system for fingerprint authentication, wherein an input fingerprint is compared to a registered template to determine whether the two match. Levison teaches generating similarity scores that are indicative of the similarity between the input and the template fingerprints, and then selecting a highest score. However, Levison also discloses that it is conventional and advantageous to compare such a highest score to a threshold. When the final score is above the threshold, the input and template fingerprints are deemed sufficiently close and the two are considered to match. See column 4, lines 23-40.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Riganati by Levison to include means for judging the input fingerprint the same as the registered template if a maximum accumulated score value exceeds a specified value, as claimed, since Riganati teaches that the maximum accumulated similarity value is indicative of the similarity between the input and the template, and Levison shows that it is conventional to compare a similarity value to a threshold to determine whether the input and a template are sufficiently similar and thus constitute a match.

#### ***Allowable Subject Matter***

11. Claims 1-7 and 10-17 would be allowed for the reasons set forth in paragraph 6 above if claim 1 is rewritten to overcome the above claim objection.

#### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Colin M. LaRose whose telephone number is (571) 272-7423. If

Art Unit: 2623

attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amelia Au, can be reached on (571) 272-7414. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306. (After July 15, 2005, the fax number will be changed to (571)-273-8300.) Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the TC 2600 Customer Service Office whose telephone number is (571) 272-2600.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CML

Group Art Unit 2623

24 June 2005



**VIKKRAM BALI**  
**PRIMARY EXAMINER**